

WHAT IS CLAIMED IS:

1. A travel route display apparatus, comprising:
 - starting point inputting means for inputting a starting point;
 - 5 destination point inputting means for inputting a destination point;
 - road map data storage means for storing therein road map data including a plurality of links forming part of a road network and distance data representative of a travel distance on each of said links;
 - travel route searching means for searching a travel route from said starting
 - 10 point to said destination point;
 - travel distance storage means for storing therein a travel distance of a moving object traveling along said travel route on each of said links;
 - distance time conversion means for converting said travel distance into travel time on the basis of a predetermined travel speed of said moving object for each of said
 - 15 links; and
 - display means for displaying said travel route, and in which
 - said display means is operative to display said travel route on the basis of said travel time of said moving object.
- 20 2. A travel route display apparatus as set forth in claim 1, in which
- said display means is operative to display a time required for said moving object to travel a travel distance along said travel route displayed by said display means.
3. A travel route display apparatus as set forth in claim 1 or claim 2, which further
- 25 comprises:
 - display mode selecting means for selecting one of two display modes including a time display mode to have said travel route displayed on the basis of said travel time and a distance display mode to have said travel route displayed on the basis of said travel distance, and in which
 - 30 said display means is operative to assume one of two display modes including said time display mode to display said travel route on the basis of said travel time and said distance display mode to display said travel route on the basis of said travel distance in response to said display mode selected by said display mode selecting means.
- 35 4. A travel route display apparatus as set forth in any one of claims 1 through 3,

which further comprises:

link omission judging means for judging each of said links to be displayed by said display means in a simplified manner as being partly omitted or not on the basis of a predetermined value of said travel time or a predetermined value of said travel distance, and in which

said display means is operative to have said travel route partly displayed in said simplified manner.

5. A travel route display apparatus as set forth in claim 3 or claim 4, in which

said display means is operative to display said display mode selected by said display mode selecting means.

6. A travel route display apparatus as set forth in claim 3 or claim 4, which further comprises:

display screen dividing means for dividing a display screen displayed by said display means into a plurality of screen areas, and in which

said display means is operative to display said travel route on said display screen divided into said screen areas divided by said display screen dividing means and selectively assume one of said time display mode and said distance display mode for each of said screen areas.

7. A travel route display apparatus as set forth in claim 6, in which

said display means is operative to selectively assume one of said time display mode and said distance display mode for each of said screen areas in such a manner that each of said screen areas on which said travel route is displayed in said time display mode is distinctively different from each of said screen areas on which said travel route is displayed in said distance display mode.

8. A travel route display apparatus as set forth in claim 7, in which

said display means is operative to selectively assume one of said time display mode and said distance display mode for each of said screen areas in such a manner that each of said screen areas on which said travel route is displayed in said time display mode is distinctively different in color from each of said screen areas on which said travel route is displayed in said distance display mode.

9. A travel route display apparatus as set forth in claim 7, in which

said display means is operative to selectively assume one of said time display mode and said distance display mode for each of said screen areas in such a manner that each of said screen areas on which said travel route is displayed in said time display mode is distinctively different in line thickness indicative of width of each of roads forming part of said road network from each of said screen areas on which said travel route is displayed in said distance display mode.

10. A travel route display apparatus as set forth in claim 7, in which

said display means is operative to selectively assume one of said time display mode and said distance display mode for each of said screen areas in such a manner that each of said screen areas on which said travel route is displayed in said time display mode is distinctively different in line style indicative of width of each of roads forming part of said road network from each of said screen areas on which said travel route is displayed in said distance display mode.

11. A travel route display apparatus as set forth in any one of claims 1 through 10, in which

said display means is operative to display said travel route on the basis of said travel time under the condition that said travel route searched by said travel route searching means is to be displayed as a whole extending from said starting point to said destination point.

12. A travel route display apparatus as set forth in any one of claims 1 through 11, which further comprises travel route guiding means for guiding along said travel route, and in which

said display means is operative to display said travel route on the basis of said travel time under the condition that said travel route is searched by said travel route searching means, and

said display means is operative to display said travel route on the basis of at least one of said travel time and said travel distance under the condition that along said travel route is guided by said travel route guiding means.

13. A travel route display apparatus as set forth in any one of claims 1 through 12, and in which

said display means is operative to display a travel route segment forming part of said travel route on the basis of said travel time under the condition that said travel

route segment in the vicinity of said starting point is to be displayed within a predetermined range.

14. A travel route display apparatus as set forth in any one of claims 1 through 13,
and in which

said display means is operative to display a travel route segment forming part of said travel route on the basis of said travel time under the condition that said travel route segment in the vicinity of said destination point is to be displayed within a predetermined range.

15. A travel route display apparatus as set forth in any one of claims 1 through 14,
and in which

said travel time includes waiting time and delay time,

said waiting time includes time spent in waiting at a traffic light and a railroad crossing and

said delay time includes time elapsed while pausing, turning right or left at an intersection.

16. A travel route display apparatus as set forth in any one of claims 1 through 15,
which further comprises: information receiving means for receiving traffic congestion information, and in which

said travel time includes congestion travel time in view of an average travel time contained in said traffic congestion information.

17. A travel route display method, comprising:

a starting point inputting step of inputting a starting point;

a destination point inputting step of inputting a destination point;

a road map data reading step of reading out road map data including a plurality of links forming part of a road network and distance data representative of a travel distance on each of said links;

a travel route searching step of searching a travel route from said starting point to said destination point;

a travel distance storage step of storing a travel distance of a moving object traveling along said travel route on each of said links;

a distance time conversion step of converting said travel distance into travel time on the basis of a predetermined travel speed of said moving object for each of said

links; and

a display step of displaying said travel route, and in which

said display step has a step of displaying said travel route on the basis of said travel time.

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18. A travel route display method as set forth in claim 17, which further comprises:

a display screen dividing step of dividing a display screen displayed in said display step into a plurality of screen areas, and in which

10 said display step has a step of displaying said travel route on said display screen divided into said screen areas divided in said display screen dividing step and selectively displaying said travel route on the basis of said travel time and said travel distance for each of said screen areas divided in said display screen dividing step.

15 19. A travel route display method as set forth in claims 17 or claim 18, which further comprises a travel route guiding step of guiding along said travel route, and in which

said display step has a step of displaying said travel route on the basis of said travel time under the condition that said travel route is searched in said travel route searching step, and

20 said display step has a step of displaying said travel route on the basis of at least one of said travel time and said travel distance under the condition that along said travel route is guided in said travel route guiding step.